

REMARKS

In view of the above amendments and following remarks, Applicants respectfully request reconsideration and allowance of the above-identified application.

Claims 12-16 remain pending in this application. Claim 12 is the sole independent claim. By this Amendment, Applicants have amended Claim 12, and canceled Claims 1-11.

Claim 12 has been objected to because of an informality. Applicants have amended Claim 12 to attend to the informality noted in the Office Action.

Claims 12, 15 and 16 stand rejected under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 3,598,493 (Fisher) in view of U.S. Patent No. 6,255,644 (Taniguchi, et al.). Claims 13 and 14 stand rejected under 35 U.S.C. § 103 as being unpatentable over Fisher and Taniguchi, et al. in view of U.S. Patent No. 6,055,111 (Nomura, et al.). Applicants traverse these rejections.

As recited in independent Claim 12, Applicants' invention is directed to an optical scale molded by using movable and fixed platens. The optical scale includes a reflecting portion and a shaft holding portion. The reflecting portion reflects light emitted from light-emitting means and leads the reflected light to light-receiving means by using a total reflection. The shaft holding portion holds a shaft and rotates the optical scale with the shaft. The reflecting portion is disposed only on the same side surface with the shaft holding portion. Further, the reflecting portion and the shaft holding portion are integrally formed in one piece using one of the movable platen and the fixed platen by employing one kind of transparent resin material.

With the reflecting portion and the shaft holding portion being integrally formed on the same side surface of the optical scale by using one platen, the precision of relative positions of the reflecting portion and the shaft holding portion is enhanced with low associated manufacturing costs.

The Fisher patent is directed to a transparent material having internal reflection properties in which a reflecting surface and a shaft holding portion are coaxial. That document, however, does not describe that the reflecting surface and shaft holding portion are integrally formed on the same side surface of an optical scale by resin molding. In particular, Applicants note that Figure 9 of the Fisher patent does not specifically describe that a reflecting surface and a shaft holding portion are formed on the same side surface. Further, in that figure, it appears that the reflecting surface and the shaft holding portion are actually formed on opposite side surfaces of the optical scale.

The Taniguchi, et al. patent is directed to an optical rotary encoder. Applicants acknowledge that this patent describes a rotary encoder whose scale portion and shaft fixing portion are integrally molded from a resin material. That patent, however, does not describe that light reflected by the scale is received by a light-receiving means. Further, the Taniguchi, et al. patent does not describe or suggest that a reflecting surface and the shaft fixing portion are integrally molded on the same side surface by using one of a movable platen and a fixed platen.

The Nomura, et al. patent is directed to methods of making plastic lenses. The Office Action cites this patent merely as describing forming a shaft holding portion to have a closed-end concave portion or a convex portion. Applicants, however, submit that this

document fails to remedy the deficiencies discussed above with respect to the Fisher and Taniguchi, et al. patents.

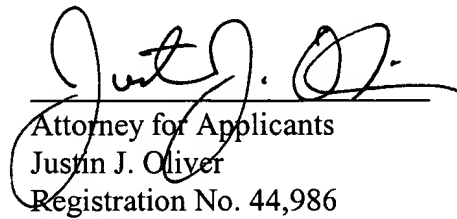
Accordingly, Applicants submit that the Fisher, Taniguchi, et al. and Nomura, et al. patents, taken alone or in combination, fail to disclose or suggest at least the features of an optical scale molded by using movable and fixed platens wherein a reflection portion is disposed only on the same side surface with a shaft holding portion, and the reflection portion and the shaft holding portion are integrally formed in one piece using one of the movable platen and the fixed platen by employing one kind of transparent resin material, as recited in independent Claim 12.

The remaining claims in this application are dependent claims which depend from the independent claims discussed above, and are thus patentable over the documents of record for reasons noted above with respect to those independent claims. In addition, each recites features of the invention still further distinguishing it from the applied patents. Applicants request favorable and independent consideration thereof.

For the foregoing reasons, Applicants request withdrawal of the rejections under 35 U.S.C. § 103.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address listed below.

Respectfully submitted,



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